

## The Sciomyzidae (Diptera) in Britain

A Check List, notice of keys to the family and of recent studies on the early stages of these killers of slugs and snails.

By L. PARMENTER

THE KEYS. In December, 1901, G. H. Verrall published the second edition of the List of *British Diptera*. His family of Sciomyzidae included the genera *Actora*, *Oedoparea*, *Dryomyza*, *Neuroctena* and *Neottiophilum*, now placed in other families. The remaining genera were *Lucina*, *Sciomyza*, *Phaeomyia*, *Pelidoptera*, *Tetanocera*, *Limnia*, *Elgiva* and *Sepedon* with 49 species between them. In 1906, there appeared the Rev. W. J. Wingate's keys to the British Diptera in his "Preliminary List of Durham Diptera", based on Schiner's *Fauna Austriaca*. This became the only work in English dealing with the species known in this country, and has not been superseded. The admirable *Flies of the British Isles* of C. N. Colyer and C. O. Hammond of 1951 could only spare space for selected species in the many genera. Wingate provided keys to the species of Sciomyzidae listed by Verrall except *Sciomyza virgata* Hal., and *S. pallidicarpa* Rond.

Wingate paid no regard to Hendel's revision of the Palaearctic Sciomyzidae of 1902/4 which however was followed by Séguy in his massive Vol. 23 of the Faune de France series, Diptères Brachycères, which had keys with line and photo illustrations applicable to most of the British species and thus became so useful to British dipterists. The family was monographed in 1939 by P. Sack in E. Lindner's *Die Fliegen der Palaearktischen Region* but this was not available in this country during the 1939-45 war. In December, 1945, the *Check List of British Insects* of G. S. Kloet and W. D. Hincks listed 54 species of Sciomyzidae in 29 genera. Additions have been announced since then. In 1956, *Sciomyza annulipes* Zett. by K. G. V. Smith in *Ent. mon. Mag.*; in 1960, *Tetanocera arrogans* Mg. and *T. elegans* Coll. by J. E. Collin in the *Entomologist*; and *Dichaetophora gracilis* Lw. by G. C. Steyskal in *Entomologist* in 1963. Although the British species of the genus *Tetanocera* were revised by Mr. J. E. Collin in 1960 no English work covered the whole family.

On the continent Dr. J. Verbeke of Brussels has been revising the Palaearctic species and has made studies of the original types. He is now engaged on revising the genus *Pherbellia*, i.e. the genus *Sciomyza* of the British List. However, to our aid have come Dr. L. V. Knutson of Cornell University and L. Lyneborg of the Copenhagen Museum with "Danish Acalyptrate Flies 3. Sciomyzidae", published in 1965 in *Entomologiske Meddelelser*, 34: 61-101. It gives, in English, descriptive keys, distributional and seasonal data, and line and photo illustrations for the 66 species recorded as occurring in Denmark. There are biological notes on the species of which 53 have had their life histories completely or partly discovered. It claims to include all the genera and species known from the British Isles and Ireland in the keys.

The average collector is usually lacking in ready access to the scattered literature and to types or reliably identified specimens so that monographs such as this with good illustrations and descriptions are much appreciated. There are some changes of generic names and groupings.

*Tetanocera marginella* Rob.-Desv. was included by Mr. J. E. Collin in his 1960 paper. This is omitted from the Danish paper but must be retained in the British List and Mr. Collin's key consulted.

Two species of *Sciomyza* of Kloet and Hinks' Check List, *S. sordida* Hendel and *S. virgata* Haliday (in Curtis), are omitted. The first, Dr. Knutson tells me (*in litt.*), because he found no specimen in the British Museum (Nat. Hist.) collection when he was studying in London. As to *S. virgata*, he informs me that he regards this as a junior synonym of *Pherbellia pallidiventris* Fallén. Knutson has followed Article 32 of the 1961 International Code in accepting *Dichetophora* rather than the grammatically correct *Dichaetophora* used by Steyskal. When Steyskal recorded the second species of this genus in Britain, I wrote to Mr. Collin and his reply was as follows:—

"I am not surprised that you have been puzzled over this question of *Dichaeophora obliterata*. The generic name was originally spelt *Dichetophora*, but to be grammatically correct it was altered to *Dichaetophora*.

"The late Dr. F. W. Edwards and myself long ago recognised that we appeared to have two apparently different species under the name of *obliterata*, but the difficulty was to decide to which the name of *obliterata* should be correctly applied.

"Loew considered that *all* European specimens were *obliterata*, and *gracilis* a species found in the Island of Rhodes in Asia Minor only. This was quite obviously incorrect.

"Fabricius credited the discovery of *obliterata* to Meigen who had taken it in "Germany" (probably Western Germany), the type therefore must surely be sought in Meigen's collection. At least the species to be known as *obliterata* must be known to occur in that part of Europe, and all the available evidence points to the fact that the species to which Loew gave the name of *obliterata* has not been recorded from that part of Central Europe.

"Loew was very precise in the difference between the two species in the shape of the antennae. His *obliterata* had the second joint 'erheblich kürzer als der 3te' and the third joint 'sehr lang und schmal, spitz', while in *gracilis* the second joint was 'fast so lang wie der 3te' and the third joint 'schmal und ziemlich spitz, doch entschieden breiter und stumpfer als bei . . . *obliterata*'.

"Séguy who had access to Meigen's collection gave a profile of the head of *obliterata* which obviously has the antennae of Loew's *gracilis*, and Pandellé in a very detailed description of his *obliterata* obviously described its antennae as being that of *gracilis*, while *all my mid-European specimens* (three from Kowarz's collection, and eight from Bigot's collection) *are all gracilis*.

"Even Zetterstedt's *obliterata* with its 'antennarum articulum ultimum 2: do fere paullo longiorem' must surely be *gracilis*. Obviously the most widely distributed species throughout Europe is *gracilis*, while Loew's *obliterata* is only known with certainty from England, and (apparently) East Prussia.

"Both the species have been taken by me in several different separate localities near Newmarket.

"It is worth remembering that in such cases, one so-called species *may* only be a mutant form of the other".

Since then Dr. Verbeke has dealt with the two species in 1964 in his "Contribution a l'étude des diptères malacophages, II.", 1964, *Bull. Inst. roy. Sc. nat. Belgique*, 40 (8): 1-27. It is now noted that the Danish paper

follows Verbeke in regarding our two species as *obliterata* Fab. = *gracilis* Loew and *finlandica* Verbeke = *obliterata* Fab. *sensu* Sack. A revised British Check List based on Knutson and Lyneborg is given below. It includes *Pherbellia lichtwardti* Hend. a species not yet recorded from Denmark but Mr. K. G. V. Smith tells me that a specimen taken by him at Killoughter, Co. Wicklow, on 15th August 1951, stands under that name in the British Museum collection (originally recorded as *Sciomyza virgata* Hal., 1952, *Ent. mon. Mag.*, **88**: 105).

EARLY STAGES. When Colyer and Hammond discussed the habits of the larvae of the family, little was known of their habit of attacking slugs and snails. The 1953 paper by C. O. Berg, "Sciomyzid larvae (Diptera) that feed on snails", in *J. Parasit.*, **39**: 630-636, has since been followed by papers by Dr. B. A. Foote in 1959 and annually since by Foote, C. O. Berg, L. V. Knutson, S. E. Neff and J. W. Stephenson in various joint combinations dealing with the habits of the family in Europe and America (many species are Holarctic). The life histories of 53 of the species recorded from Denmark or presumed to occur there, have been worked out. The species develop from hatching to pupation on gastropod molluscs. Knutson and Lyneborg give a summary of the habits which range from the parasitoids to the purely predatory species. Some are confined to one species of mollusc but others are more catholic in their tastes. In 1961, J. W. Stephenson published "A culture method for slugs" in *Proc. Malacological Society*. This illustrated paper must help those wishing to study the early stages. He has followed it in 1965 with his paper, jointly with C. O. Berg and L. V. Knutson, on the "Biology of a slug-eating fly, *Tetanocera elata* (Diptera: Sciomyzidae)" in the same journal, illustrated with photographs of the larva. The larvae feed on the mucus in the first instar and during the second instar commence their habit of living as a predator until pupation, killing up to 9 slugs of 8 species during a complete life cycle of 61-90 days. In 1963, L. V. Knutson and C. O. Berg's paper in *Proc. R. ent. Soc. Lond.* (a), **38**: 45-58, "Biology and immature stages of a snail killing fly *Hydromya dorsalis* (Fabricius) (Diptera: Sciomyzidae)" included line drawings of egg, larva and pupa and photographs of male genitalia of this species which feeds on eggs and adults of snails found in shallow flowing water.

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#### A CHECK LIST OF THE BRITISH SPECIES OF SCIOMYZIDAE.

Adapted from Knutson and Lyneborg, 1965.

SALTICELLINAE  
 SALTICELLA Rob.-Desv. 1830  
*fasciata* Mg. 1830  
*maculipes* Rond. 1868  
 PHAEMYINAE  
 PELIDNOPTERA Rond. 1856  
 PHAEMYIA Schin. 1862  
*nigripennis* Fab. 1794

*fuscipennis* Mg. 1830  
 SCIOMYZINAE  
 SCIOMYZINI  
 COLOBAEA Zett. 1838  
 CETENULUS Rond. 1856  
*bifasciella* Fln. 1820  
*distincta* Mg. 1830  
*pectoralis* Zett. 1846

- PHERBELLIA *Rev.-Desv.* 1830  
   DITAENIA *Hend.* 1902  
   DITAENIELLA *Sack* 1939  
   OXYTAENIA *Sack* 1939  
*grisescens* *Mg.* 1830  
*schoenherrii* *Fln.* 1826  
*cinerella* *Fln.* 1820  
*brunnipes* *Mg.* 1838  
*lichtwardti* *Hend.* 1902  
*albocostata* *Fln.* 1820.  
*griseola* *Fln.* 1820  
*dorsata* *Zett.* 1846  
*nana* *Fln.* 1820  
*annulipes* *Zett.* 1846  
*dubia* *Fln.* 1820  
*ventralis* *Fln.* 1820  
*obtusa* 1820  
*pallidiventris* *Fln.* 1820  
   *virgata* *Hal. in Curtis* 1839  
*scutellaris* *von Ros.* 1840  
 PTEROMICRA *Lioy* 1864  
   DICHROCHIRA *Hend.* 1902  
*glabricula* *Fln.* 1820  
*leucopeza* *Mg.* 1838  
*nigrimana* *Mg.* 1830  
 SCIOMYZA *Fln.* 1820  
   BISCHOFFIA *Hend.* 1902  
*simplex* *Fln.* 1820  
 TETANURA *Fln.* 1820  
*pallidiventris* *Fln.* 1820  
 TETANOCERINI  
 ANTICHAETA *Hal.* 1838  
*analisis* *Mg.* 1830  
 COREMACERA *Rond.* 1856  
   STATINIA *Mg.* 1800  
*marginata* *Fab.* 1781  
 DICETOPHORA *Rond.* 1868  
*obliterata* *Fab.* 1805  
   *gracilis* *Lw.* 1845  
*finlandica* *Verbeke* 1964  
   *obliterata* *Sack* 1939 *nec Fab.*  
 DICTYA *Mg.* 1803  
*umbrarum* *L.* 1761  
 ECTINOCERA *Zett.* 1846  
*borealis* *Zett.* 1836  
 ELGIVA *Mg.* 1838  
   HEDRONEURA *Hend.* 1902  
*cucularia* *L.* 1767  
*rufa* *Panz.* 1798  
   *sundewalli* *Fries* 1823  
 EUTHYCERA *Latr.* 1829  
*chaerophylli* *Fab.* 1798  
*fumigata* *Scop.* 1763  
 HEMITELOPTERYX *Cresson* 1920  
*brevipennis* *Zett.* 1846  
 HYDROMYA *Rob.-Desv.* 1830  
*dorsalis* *Fab.* 1798  
 KNUTSONIA *Verbeke* 1964  
   ELGIVA *auct. nec Rond.* 1856  
*albiseta* *Scop.* 1763  
*lineata* *Fln.* 1820  
 LIMNIA *Rob.-Desv.* 1830  
*unguicornis* *Scop.* 1763  
 PHERBINA *Rob.-Desv.* 1830  
*coryleti* *Scop.* 1763  
   *reticulata* *Fab.* 1781  
 PSACADINA *Enderlein* 1939  
*punctata* *Fab.* 1794  
   *communis* *Rob.-Desv.* 1830  
 RENOCERA *Hend.* 1900  
*pallida* *Fln.* 1820  
*fuscinervis* *Zett.* 1846  
   *strobli* *Hend.* 1900  
*striata* *Mg.* 1830  
 SEPEDON *Latr.* 1804  
*sphegea* *Fab.* 1775  
*spinipes* *Scop.* 1763  
 TETANOCERA *Duméril* 1800  
*robusta* *Lw.* 1847  
*arrogans* *Mg.* 1830  
*unicolor* *Lw.* 1847  
*hyalipennis* *von Ros.* 1840  
   *laevifrons* *Lw.* 1847  
*silvatica* *Mg.* 1830  
*ferruginea* *Fln.* 1820  
*elata* *Fab.* 1781  
*marginella* *Rob.-Desv.* 1830  
*phyllophora* *Melander* 1920  
   *nigricosta* *Séguy* 1936  
   *elegans* *Collin* 1960  
 TRYPETOPTERA *Hend.* 1900  
*punctulata* *Scop.* 1763

Synonyms are inset.

## Amendments to the List of British Diptera

By L. PARMENTER

ANTHOMYIIDAE. The sub-families of Anthomyiinae and Fucellinae of Kloet and Hinck's Check List, 1945, are now regarded by Prof. W. Hennig as a separate family from the Muscidae.

*Fucellia tergina* Zetterstedt, 1845, in place of *intermedia* Lundbeck, 1900.—Dr. L. Lyneborg in his 1965 paper "The *Fucellia maritima* group in North Europe, with descriptions of a new species (Dipt., Anthomyiidae)" in *Entomologiske Meddelelser* 34 : 19-29 describes a new species *baltica* from Germany with figures of the genitalia and hind femora of this new species and of *F. maritima* Hal. and *F. tergina* Zett. (lectotype to *inter-*